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Awareness of gastroesophageal reflux disease among health specialties students at Umm al-Qura University in Saudi Arabia

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ABSTRACT

Background: Gastroesophageal reflux disease (GERD) is a common chronic gastrointestinal disorder. It is defined as a condition in which reflux of gastric contents causing symptoms and complications. Heartburn is considered the classic and most common symptom of GERD. Our aim is to assess the awareness and knowledge of GERD among health specialties at Umm Al-Qura University (UQU), Makkah, Saudi Arabia. **Methods:** A cross-sectional survey was distributed among students of health-care specialties at UQU. The survey was made by Google forms and sent to the students through social media platforms. The survey contained 18 questions to assess the knowledge and awareness of GERD. **Results:** A total of 374 students participated in this study. The mean age of participants was 21.7, responders age was between 17 and 25. Among the 374 participant 280 (74.9%) have a good knowledge of GERD. Collage and academic level significantly affected the level of awareness of GERD ($p < 0.05$). **Conclusion:** Most of the students had a good knowledge regarding GERD. In addition, students in higher academic years have more knowledge of GERD. Further research can be undertaken to assess and compare the knowledge of postgraduate, students of other specialties and students at other universities on GERD.

Keywords: Gastroesophageal reflux disease, prevalence, risk factors, university students, Umm Al-Qura University

1. INTRODUCTION

Gastroesophageal reflux disease (GERD) is considered a major gastrointestinal disease diagnosed during patient visits to non-emergency clinics. GERD is defined as "a condition in which reflux of gastric contents cause's troublesome symptoms or complications". It is crucial to diagnose and treat it before exacerbation of the symptoms (Vakil *et al.*, 2006; Clarrett and Hachem, 2018). Heart burn is considered the classic and most common symptom of



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GERD. It is a burning sensation felt mostly in the chest, might radiate toward the mouth, because of acid reflux into the esophagus. Other symptoms of GERD are also common such as globus sensation, nausea, vomiting and cough. Complications of GERD could occur if it left untreated, it could cause serious issues including esophagitis, Barrett's esophagus, gastrointestinal bleeding, and peptic strictures (Badillo, 2014; Clarrett and Hachem, 2018).

Prevalence of gastroesophageal reflux disease (GERD) and the incidence of its complications have increased tremendously over the last few decades. General prevalence of GERD is reported to be 13.98% and it varies greatly according to the region (Nirwan *et al.*, 2020). However, In Saudi Arabia, the prevalence of GERD varies from 23.47% to 45.4% based on two different studies conducted in the west and central region (Alsuwat *et al.*, 2018). The etiology of GERD is thought to be multifactorial in nature, mainly it involve dysfunction of the esophagogastric junction, increased intra-gastric pressure, and esophageal hypersensitivity; Furthermore, the main established risk factors of GERD are heredity, obesity and tobacco smoking (Antunes *et al.*, 2021).

Lifestyle is one of the risk factors for GERD. Since university students mostly have poor lifestyle due to collage and stress of studying. They tend to have higher prevalence of GERD when compared to general population (Lee *et al.*, 2017). Accordingly, we aim to assess the awareness and knowledge of GERD among health specialties at Umm Al-Qura University, Makkah, Saudi Arabia.

2. MATERIAL AND METHODS

This is a cross-sectional study based on a survey conducted at Umm Al-Qura University in Makkah, Saudi Arabia from February 2021 to March 2021. There are more than 4100 students of health-related specialties in the university and the sample size was determined using Roasoft program. Subsequently, we found that the minimum sample sizes to accomplish a precision of $\pm 5\%$ with a 95% confidence interval (CI) are 353.

The questionnaire was created through Google forms and was distributed among UQU students through social media platforms including WhatsApp, Twitter, Telegram, and E-mail. To assess the knowledge and awareness regarding GERD we needed at least 353 responses. All students form other colleges and universities were excluded, and to avoid confusion a simple language was used to explain all questions.

Validated questionnaire was used based on previous articles. The questionnaire contained demographic information like gender, age, college, academic year, and marital status. It also included questions related to awareness of GERD. A common soring method was used to assess the knowledge of participants, 2 points were given for correct answers, 1 point for "I do not know" answer and 0 for the incorrect. After data collection, a participant who correctly answered 75% or more of the questions which is (18 points out of 24) was considered to have good knowledge about GERD.

The questionnaire was distributed to the students in February 2021. Information's of first author were written on massage of the survey to facilitate contacting if there were any issues. Any questions about the questionnaire were answered by the researchers. Before participating responders were asked for their consent. We entered the data on Microsoft Excel spreadsheets. Data was transferred to spreadsheets of Statistical Package for Social Studies (SPSS 25) (IBM, NY, USA). Frequency of categorical variables was calculated for the mean and standard deviation. Univariate analysis was done to discover any association between GERD other variables to see potential risk factors, a p-value of <0.05 was taken as significant.

3. RESULTS

A total of 374 students participated in this study, 207 (55.3%) were males and 167 (44.7%) were females. Age of participants was between 17 to 25 with a mean of 21.7. Over half of participant were form collage of medicine 261 (96.8%) while only 13 (3.5%) were from dentistry collage. 5th year medical student had the higher response rate with 99 (26.5%) participants, meanwhile on 15(4.0%) were interns. When asked about marital status, over 70% of the respondents reported that they are singles (Table 1).

Table 1 Demographic data

| Variable | Category | Frequency (%) |
|---------------------------------|---------------------|---------------|
| Age (years) (mean [SD]) [range] | 21.7 (1.49) [17-25] | |
| Age | 17 | 1 (0.3%) |
| | 18 | 1 (0.3%) |
| | 19 | 28 (7.5%) |
| | 20 | 64 (17.1%) |
| | 21 | 74 (19.8%) |
| | 22 | 79 (21.1%) |

| | | |
|-------------------|---------------------------|-------------|
| | 23 | 88 (23.5%) |
| | 24 | 37 (9.9%) |
| | 25 | 2 (0.5%) |
| Gender | Male | 207 (55.3%) |
| | Female | 167 (44.7%) |
| Collage | Medicine | 261 (69.8%) |
| | Dentistry | 13 (3.5%) |
| | Applied medical sciences. | 38 (10.2%) |
| | Pharmacy | 33 (8.8%) |
| | Nurse | 29 (7.8%) |
| Academic year | 2nd year | 77 (20.6%) |
| | 3rd year | 66 (17.6%) |
| | 4th year | 78 (20.9%) |
| | 5th year | 99 (26.5%) |
| | 6th year | 39 (10.4%) |
| | Intern | 15 (4.0%) |
| Marital status | Single | 366 (97.9%) |
| | Married | 8 (2.1%) |
| Knowledge of GERD | Good knowledge | 280 (74.9%) |
| | Poor Knowledge | 94 (25.1%) |

The level of awareness was determined through passing result of (75%), if participant get more than 75% will be considered having good knowledge. The mean score of knowledge score was 19.1 ± 2.7 . 280 (74.9%) participant had good knowledge of GERD, while 94 (25.1%) had poor knowledge of the disease (Figure 1).

Level of Knowledge of GERD

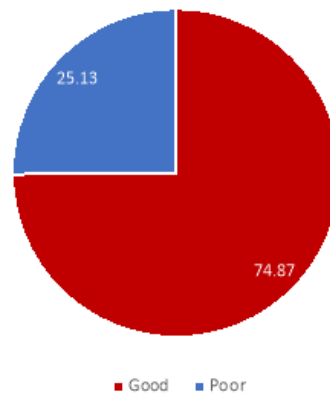


Figure 1 Level of awareness

The next section of the survey was to assess the knowledge of participants, when they were asked if they heard about GERD before the majority said that they have 364 (97.3%). In addition, 195 (52.1%) believe that recurrent episodes of sore throat might indicate GER. Nevertheless, 235 (62.8%) did not know if frequent snacking can cause GERD or not. More than two third of participants believe that old age is a risk factor of GERD and 230 (61.5%) think that regular exercise can help prevention GERD. Most of the students agree that lying down after having a meal can increase the risk of having the disease and only 13 (3.5%) believe that pregnancy does not increase risk of developing GRED. Regarding diet 279 (74.6%) says that fiber diet is the best to reduce risk of having GERD (Table 2).

Table 2 Knowledge about GERD

| Question | Yes | No | I don't know |
|---|-------------|-------------|--------------|
| Have you ever heard about the term 'Gastroesophageal reflux disease' or 'GERD'? | 364 (97.3%) | 7 (1.9%) | 3 (0.8%) |
| Do you have a close family member affected with GERD? | 169 (45.2%) | 146 (39.0%) | 59 (15.8%) |
| Repeated episodes of sore throat may indicate GERD? | 195 (52.1%) | 72 (19.3%) | 107 (28.6%) |
| Do you think increased intake of carbonated drinks and caffeine can cause GERD? | 307 (82.1%) | 24 (6.4%) | 43 (11.5%) |
| GERD can be caused due to frequent snacking? | 1 (0.3%) | 138 (36.9%) | 235 (62.8%) |
| Old age can increase the risk of GERD? | 292 (78.1%) | 22 (5.9%) | 60 (16.0%) |
| Do you think intake of healthy diet increase the risk of GERD development? | 1 (0.3%) | 311 (83.2%) | 62 (16.6%) |
| Do you think regular exercise can help in prevention of GERD? | 230 (61.5%) | 43 (11.5%) | 101 (27.0%) |
| Lying down immediately after having a meal dose not increase the risk of GERD? | 63 (16.8%) | 275 (73.5%) | 36 (9.6%) |
| Pregnant ladies are at more risk of developing GERD? | 282 (75.4%) | 13 (3.5%) | 79 (21.1%) |
| Do you think GERD can be avoided by maintaining a healthy BMI? | 280 (74.9%) | 32 (8.6%) | 62 (16.6%) |
| Question | Fat diet | Fibre diet | I don't know |
| What kind of diet can reduce the risk of GERD? | 36 (9.6%) | 279 (74.6%) | 59 (15.8%) |

When participants were asked about the symptoms of GERD, 355 (26.0%) students agreed that acid reflux is a common symptom for having GERD, and other symptoms were heartburn 321 (23.5%), regurgitation 277 (20.2%). Meanwhile, only 51 (2.7%) of participant think pain or difficulty in swallowing is a symptom of GERD and 22 (1.6%) believe that itchy throat is a symptom of GERD (Figure 2).

When level of awareness was investigated to look for an association between it and demographic data, we found that collage and academic year had significant effect on the level of knowledge and awareness ($p = <0.05$). Nevertheless, no significant association was discovered between level of awareness and gender and marital status ($p = >0.05$) (Table 3).

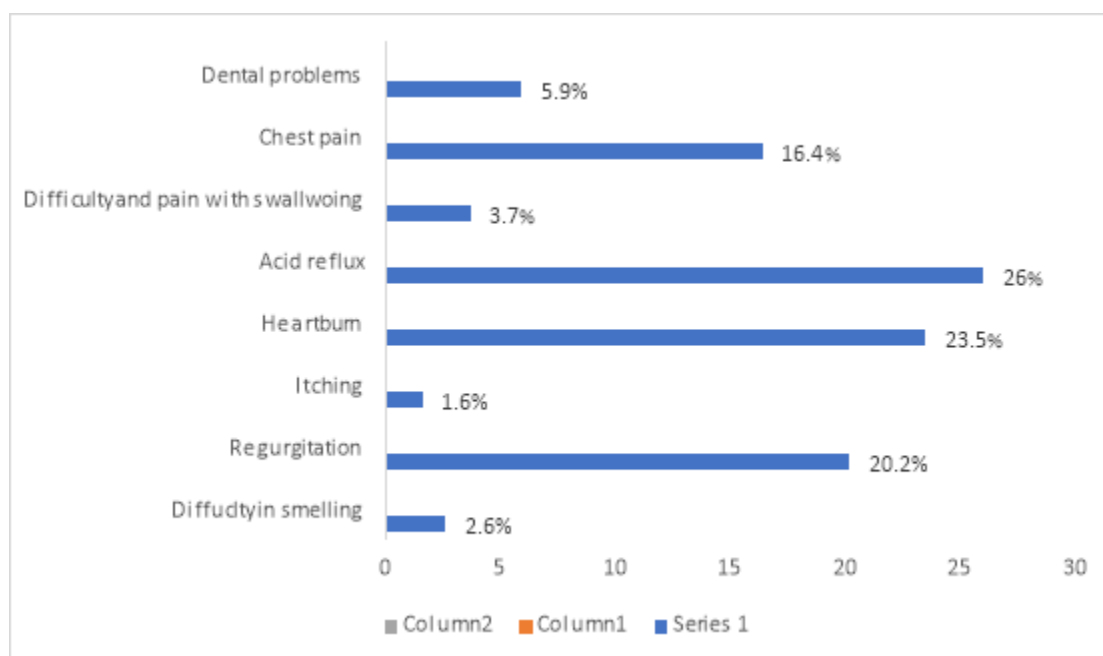


Figure 2 symptoms of GERD

Table 3 Association between level of awareness and Demographic data

| Variable | Level of knowledge | | P VALUE |
|--------------------------|--------------------|------------|--------------------|
| | Good n (%) | Poor n (%) | |
| Gender | | | |
| Male | 162 (78.3%) | 45 (21.7%) | 0.095 ^a |
| Female | 118 (70.7%) | 49 (29.3%) | |
| Collage | | | |
| Medicine | 202 (77.4%) | 59 (22.6%) | 0.000 ^b |
| Dentistry | 11 (84.6%) | 2 (15.4%) | |
| Applied medical sciences | 34 (89.5%) | 4 (10.5%) | |
| Pharmacy | 13 (39.4%) | 20 (60.6%) | |
| Nurse | 20 (69.0%) | 9 (31.0%) | |
| Academic year | | | |
| 2nd year | 35 (45.5%) | 42 (54.5%) | 0.000 ^b |
| 3rd year | 44 (66.7%) | 22 (33.3%) | |
| 4th year | 67 (85.9%) | 11 (14.1%) | |
| 5th year | 87 (87.9%) | 12 (12.1%) | |
| 6th year | 36 (92.3%) | 3 (7.7%) | |
| Intern | 11 (73.3%) | 4 (26.7%) | |

| Marital status | | | |
|----------------|-------------|------------|--------------------|
| Single | 272 (74.3%) | 94 (25.7%) | 0.210 ^a |
| Married | 8 (100%) | 0 (0.0%) | |

a: Fisher's Exact Test

b: Pearson Chi-Square

4. DISCUSSION

In our study the majority of participants have heard about GERD (97.3%), this indicates that a good percentage of participant have some sort of awareness of the disease. Comparing this result with a study that conducted in Saudi Arabia general population nearly half of participants did not hear about GERD before (Al-Zahrani *et al.*, 2019). Nearly half of participants (45.2%) have a close family member affected by GERD. This is considered a high prevalence. These results reflect those of Alrashed *et al.* who also found high prevalence of GERD among university students (Alrashed *et al.*, 2019). In addition, family history is considered a risk factor of having GERD (Alkhathami *et al.*, 2017). This confirms the importance of having good knowledge to detect early signs, symptoms and preventing the occurrence of the disease.

Another important finding was the level of knowledge among the student (74.9%), This finding is consistent with that of Gaddam *et al.*, who discussed the reason of high prevalence of GERD lead to increase level of awareness (Gaddam and Sharma, 2011). Respondents were asked about diet and 74.6% said fiber diet could reduce risk of GERD. This might reflect a good knowledge of healthy food benefits. This also is noticed when participant was asked about the effect of BMI on having GERD. An interesting finding was that 82.1% of participant agreed that GERD can be caused by drinking carbonated drinks and caffeine in general. In addition, nearly two third of participant 73.5% know that lying down after having meal can cause having GERD. Which indicate good knowledge of preventing episodes of regurgitation.

Significant association was found between academic year and level of awareness ($p=0.000$). A possible explanation for this might be that the more the academic year the more educated you are regarding GERD. Meanwhile, when age was correlated with level of knowledge among general population no significant association was found (Al-Zahrani *et al.*, 2019). Further research should be undertaken to investigate the level of awareness and knowledge of university students in other specialties and universities. This might help decreasing the prevalence of GERD in the future.

5. CONCLUSION

Most of the participants had a good knowledge regarding GERD. In addition, students in higher academic years have more knowledge than those of first years. There was no difference between male and female regarding level of awareness of GERD. Further research is needed to assess and compare the knowledge of postgraduate students, students of other specialties and students at other universities on GERD knowledge.

Author contribution

All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript. Khalid Alhazmi: Project administration, Formal analysis, Visualization, writing original draft Software, Investigation. Salah Bakry: Methodology, writing original draft, Investigation. Abdulrahman Kabli: Writing – review & editing, Investigation, Formal analysis. Suhayb Bakry: Writing – review & editing, Investigation. Mohannad Hemdi: Supervision. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Ethical approval

The study was approved by the Ethics and Research Review Committee of Umm Al-Qura University, Faculty of Medicine (Approval number: HAPO-02-K-012-2021-02-536), Data of approval was 2/2/2021.

Data and materials availability

All data associated with this study are present in the paper.

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